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**Amendments to the Claims**

Please amend the claims as follows:

- 1) ~~1~~-(currently amended)—A method of making optical quality ~~components~~films, comprising the steps of:
- a) ~~—~~ depositing silica a-buffer layers respectively on a front and back face of first silica film on a silicon wafer by PECVD (Plasma Enhanced Chemical Vapor Deposition) to provide a first structure in resistant to wafer warp during thermal processing by PECVD (Plasma Enhanced Chemical Vapor Deposition);
  - b) subjecting said first structure to a first thermal treatment to reduce optical absorption and compressive stress in said buffer layers;
  - c) said first thermal treatment comprising:
    - i) subjecting said first structure to a temperature that ramps up from a stabilization temperature to a temperature of at least 800°C to decrease compressive stress in said buffer layers from an initial compressive value;
    - ii) continuing to subject said first structure to said temperature of at least 800°C for a period of at least 30 minutes to further decrease compressive stress in said buffer layers and reduce optical absorption; and
    - iii) ramping down said temperature to which said first structure is subjected to a final temperature such that said first structure undergoes an elastic deformation wherein the compressive stress in said buffer layers increases linearly to a final compressive value that is less than said initial compressive value;
  - d) depositing a silica core layer on said buffer layer on said front face of the wafer by PECVD to form a second structure; and
  - e) subjecting said second structure to a second thermal treatment to reduce optical absorption and tensile stress in said cores layer;
  - f) said second thermal treatment comprising:
    - i) subjecting said second structure to a temperature that ramps up to a temperature of at least 600°C to relieve tensile stress in said core layer from an initial tensile value;
    - ii) continuing to subject said second structure to a temperature of at least 600°C for a period of at least 30 minutes to reduce optical absorption; and

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iii) ramping down said temperature to which said second structure undergoes elastic deformation wherein said tensile stress in said core layer decreases linearly to a final tensile value that is less than said initial tensile value.

~~subjecting the wafer to a first heat treatment to reduce optical absorption, wafer warp, and compressive stress;~~

~~depositing a second silica film on the wafer by PECVD; and~~

~~subsequently subjecting the wafer to a second heat treatment to reduce optical absorption, wafer warp and tensile stress.~~

2.(cancelled)

3.(cancelled)

4.(currently amended) A method as claimed in claim 31, wherein the duration of said first phasesaid first structure is maintained at said stabilization temperature for a period of from ~~lies~~ in the range 1.3 to 130 minutes.

5.(currently amended) A method as claimed in claim 31, wherein said first structure is maintained at said stabilization temperature for a period of ~~the duration of said first phase is~~ about 13 minutes.

6.(currently amended) A method as claimed in claim 3, wherein the temperature in said second of said first structure phase is ramped up in said first thermal treatment at a rate lying in the range 1°C/min to 25°C/min.

7.(currently amended) A method as claimed in claim 36, wherein the temperature in said second phase of said first structure in said first thermal treatment is ramped up at 5°C/min.

8.(currently amended) A method as claimed in claim 31, wherein said first predetermine stabilization ~~temperature~~ lies in the range 300°C to 700°C.

9.(currently amended) A method as claimed in claim 71, wherein said first predetermine stabilization temperature is about 400°C.

10.(currently amended) A method as claimed in claim 8, wherein the temperature temperature of said first structure in said fourth phase is ramped down at a rate in the range 1°C/min. to 25°C/min.

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- 11.(currently amended) A method as claimed in claim 9, wherein the temperature of said first structure in said fourth phase is ramped down at 2.5°C/min.
- 12.(currently amended) A method as claimed in claim ~~3~~1, wherein in said first thermal treatment said first structure is maintained at second predetermined a temperature that lies in the range of 800°C to 1,300°C for at least 30 minutes.
- 13.(currently amended) A method as claimed in claim ~~11~~1, wherein in said first thermal treatment said second predetermined temperature first structure is maintained at a temperature of about 900°C for at least 30 minutes.
- 14.(currently amended) A method as claimed in claim 1, wherein said first and second ~~heat~~ thermal treatments are carried out in the presence of an inert gas.
- 15.(currently amended) A method as claimed in claim ~~13~~14, wherein said inert gas is selected from the group consisting of: nitrogen, ~~N<sub>2</sub>~~, oxygen, ~~O<sub>2</sub>~~, hydrogen, ~~H<sub>2</sub>~~, water vapour, H<sub>2</sub>O, argon, ~~Ar~~, fluorine, ~~F<sub>2</sub>~~, carbon tetrafluoride, ~~CF<sub>4</sub>~~, nitrogen trifluoride, ~~NF<sub>3</sub>~~, and hydrogen peroxide, ~~H<sub>2</sub>O<sub>2</sub>~~.
- 16.(currently amended) A method as claimed in claim ~~13~~14, wherein the ~~flow rate of said inert gas has a constant flow rate~~ is constant.
- 17.(currently amended) A method as claimed in claim ~~15~~16, wherein the ~~said flow rate of said inert gas~~ lies in the range 1 liter/min. to 100 liters/min.
- 18.(currently amended) A method as claimed in claim 31, wherein in said the second heat thermal treatment follows a predetermined temperature profile said second structure is maintained at a temperature lying in the range 600 to 1300°C for at least 30 minutes.
- 19.(currently amended) A method as claimed in claim ~~17~~18, wherein wherein in said second thermal treatment said second structure is maintained at a temperature of 900°C for at least 30 minutes said second profile follows the same form as said first profile.
- 20.(currently amended) A method as claimed in claim 10, wherein deposition is carried out in a seven-dimensional space wherein the flow rates of raw material gas, oxidation gas, carrier gas and dopant gas are set at fixed values, ~~the a total deposition pressure is set at a fixed value, a post-deposition thermal treatment is carried out, said post deposition treatment is at a temperature selected from a group consisting of a set of predetermined temperature treatments~~.

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and the observed FTIR (Fourier Transform Infrared Spectroscopy) characteristics of the resulting product are used to determine ~~select said~~ the post deposition thermal treatment temperature from said group of predetermined treatments.

21.(currently amended) A method as claimed in claim 19, wherein the raw material gas is  $\text{SiH}_4$ , the oxidation gas  $\text{N}_2\text{O}$ , the carrier gas is  $\text{N}_2$ , and the dopant gas is  $\text{PH}_3$ , the  $\text{SiH}_4$  flow rate a first independent variable, the  $\text{SiH}_4$  flow, is fixed at about 0.20 std litre/min; the  $\text{N}_2\text{O}$  flow rate a second independent variable, the  $\text{N}_2\text{O}$  flow, is fixed at about 6.00 std litre/min; the  $\text{N}_2$  flow rate a third independent variable, the  $\text{N}_2$  flow, is fixed at about 3.15 std litre/min; the  $\text{PH}_3$  flow rate a fourth independent variable, the  $\text{PH}_3$  flow, is fixed at about 0.50 std litre/min; the total deposition pressure a fifth independent variable, the total deposition pressure, is fixed at about 2.60 Torr; a sixth independent variable, the post-deposition thermal treatment is varied among the following choices selected from the group consisting of: 30 minutes duration thermal treatment in a nitrogen ambient at 600°C; 30 minutes duration thermal treatment in a nitrogen ambient at 700°C; 30 minutes duration thermal treatment in a nitrogen ambient at 750°C; 30 minutes duration thermal treatment in a nitrogen ambient at 800°C; 30 minutes duration thermal treatment in a nitrogen ambient at 850°C; and 30 minutes duration thermal treatment in a nitrogen ambient at 900°C.

22.(cancelled)

23.(cancelled)

24.(currently amended) A method as claimed in claim 22, wherein a protective layer is deposited on the back face of the buffer layer on the back side of the wafer and a compensating layer is deposited on the front face of the wafer.

25.(currently amended) A method as claimed in claim 24, wherein the protective layer and compensating layer are silicon nitride.

26.(cancelled)

27.(cancelled)

28. (cancelled)

29.(cancelled)

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30.(cancelled)  
31.(cancelled)